



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,034	01/28/2004	Kartik B. Ariyur	H0004975-1065	4798
128	7590	01/25/2008	EXAMINER	
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			LE, JOHN H	
ART UNIT		PAPER NUMBER		
2863				
MAIL DATE		DELIVERY MODE		
01/25/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/767,034	ARIYUR ET AL.
Examiner	Art Unit	
John H. Le	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on 27 November 2007.
- 2a) This action is **FINAL**.                                   2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1,3-11,13,14,16-23,25,26,30-38 and 40 is/are pending in the application.
- 4a) Of the above claim(s) 2,12,15,24,27-29 and 39 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,3,4,13,14,16,17,25,26,30,31 and 40 is/are rejected.
- 7) Claim(s) 5-11,18-23 and 32-38 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 28 January 2004 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

***Response to Amendment***

1. This office action is in response to applicant's amendment received on 11/27/2007.

Claims 1, 14, 26, and 32 have been amended.

Claims 2, 12, 15, 24, 27-29, and 39 have been cancelled.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-4, 13-14, 16-17, 25-26, 30-31, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (US 2002/0120416 A1) in view of Bao et al. (USP 6,996,374).

Regarding claims 1, 14, and 26, Liu et al. disclose a trending system comprising: a trending program; and computer readable medium bearing the trending program (e.g. [0033]); and wherein: the trending program comprises a sliding window filter (software for sorting) (e.g. [0038], [0039]); the sliding window filter receives a data set from a physical system (e.g. clock skew) (e.g. [0033]-[0034]); the data set comprises a plurality of data points (e.g. [0036]); the sliding window filter (software for sorting) selects multiple data windows (data network) in the data set (network data processing system 100 may include additional servers, clients, and other devices)(e.g. [0022],[0039]), each

of the data windows including a subset plurality of the data points in the data set (e.g. [0037]-[0038]), and with adjacent windows in the multiple data windows overlap in the data set (e.g., more than one point in the data set has the same coordinate)[0038]); the sliding window filter generates lower confidence bounds for each data point using each of the multiple data windows that includes the data point (e.g. [0038]-[0039]).

Liu et al. fail to teach the sliding window filter generates upper confidence bounds; selects an upper confidence bound and a lower confidence bound for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds for that data point; and generate a filtered estimate of the data set from the selected upper confidence bounds and lower confidence bounds for each data point.

Bao et al. teach a window filter generates upper confidence bounds and lower confidence bounds (bound data around the select points along the regression line 619, therefore bound data around the select point above the regression line is an upper confidence bound and bound data around the select point below the regression line is lower confidence bound) for each data point using each of the multiple data windows that includes the data point (e.g. Fig.6, Col.20, lines 14-35, Col.21, lines 33-55); selects an upper confidence bound and a lower confidence bound for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds (The value confidence intervals (CI) essentially indicates how tightly bound the data might be around the selected point) for that data point (e.g. Col.20, lines 14-35); and generate a filtered estimate of the data set (e.g. Col.6, lines

21-26, Col.9, lines 46-65) from the selected upper confidence bounds and lower confidence bounds for each data point (e.g. Fig.6, Col.20, lines 14-35, Col.21, lines 33-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform the sliding window filter generates upper confidence bounds; selects an upper confidence bound and a lower confidence bound for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds for that data point; and generate a filtered estimate of the data set from the selected upper confidence bounds and lower confidence bounds for each data point as taught by Bao et al. in the system of Liu et al. for the purpose of improving the accuracy of the regression by using pre-regression filtering (Bao et al., Col.6, lines 21-29).

Regarding claims 3,16, and 30, Liu et al. fail to teach generates upper confidence bounds and lower confidence bounds through a linear regression and a statistical inference of the data set.

Bao et al. teach disclose generates upper confidence bounds and lower confidence bounds through a linear regression and a statistical inference of the data set (e.g. Fig.6, Col.20, lines 14-35, Col.21, lines 33-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform a window filter generates upper confidence bounds and lower confidence bounds through a linear regression and a statistical inference of the data set as taught by Bao et al. in the system of Liu et al. for the purpose of improving

the accuracy of the regression by using pre-regression filtering (Bao et al., Col.6, lines 21-29).

Regarding claims 4, 17, and 31, Liu et al. fail to teach the statistical inference using Student-t statistic.

Bao et al. teach the statistical inference using Student-t statistic (e.g. Col.20, lines 14-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform the statistical inference using Student-t statistic as taught by Bao et al. in the system of Liu et al. for the purpose of improving the accuracy of the regression by using pre-regression filtering (Bao et al., Col.6, lines 21-29).

Regarding claims 13, 25, and 40, Liu et al. disclose the physical system (e.g. clock skew) (e.g. [0033]-[0034]) comprises an aircraft system (wireless communication links) (e.g. [0021], [0059]).

#### ***Allowable Subject Matter***

4. Claims 5-11, 18-23, and 32-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 5, 18, and 32, in combination with other limitations of the claims, none of the prior art of record teaches or suggests wherein a trend change detection mechanism determines a first convex hull for a set of upper confidence

bounds and a second convex hull for a set of lower confidence bounds; the trend change detection mechanism adapted to compare the first convex hull and the second convex hull to determine a transition point in the data set; the trend change detection mechanism adapted to determine an estimated trend of the data set based on the transition point and the set of upper confidence bounds and the set of lower confidence bounds. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claims 8, 21, and 35, in combination with other limitations of the claims, none of the prior art of record teaches or suggests wherein the trending system further comprises an outlier elimination mechanism, the outlier elimination mechanism adapted to remove statistical outliers in the data set by generating a first prediction cone for data points in a left sample window, generating a second prediction cone for data points in a right sample window, and determining if data points in a test window reside in the first prediction cone and the second prediction cone. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

#### ***Response to Arguments***

5. Applicant's arguments filed 11/27/2007 have been fully considered but they are not persuasive.

-Applicant argues that the prior did not teach “selects an upper confidence bound and a lower confidence bound for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds for that data point” as cited in claims 1, 14, and 26.

Examiner position is that Bao et al. teach selects an upper confidence bound and a lower confidence bound for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds (The value confidence intervals (CI) essentially indicates how tightly bound the data might be around the selected point) for that data point (e.g. Col.20, lines 14-35).

-Applicant argues that the prior did not teach “determining multiple data windows in the data set and each of the data windows including a subset plurality of the data points in the data set, and with adjacent windows in the multiple data windows overlap in the data set” as cited in claims 1, 14, and 26

Examiner position is that Liu et al. Teach determining multiple data windows (data network) in the data set (network data processing system 100 may include additional servers, clients, and other devices)(e.g. [0022],[0039]), each of the data windows including a subset plurality of the data points in the data set (e.g. [0037]-[0038]), and with adjacent windows in the multiple data windows overlap in the data set (e.g., more than one point in the data set has the same coordinate)[0038]).

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H. Le whose telephone number is 571 272 2275. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on 571 272 2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

Application/Control Number:  
10/767,034  
Art Unit: 2863

Page 9

have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John H. Le  
Patent Examiner-Group 2863  
January 18, 2008

  
John Barlow  
Supervisory Patent Examiner  
Technology Center 2800